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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/539,264 | 06/16/2005 | Masahiro Yasumura | 038919.56418US | 8500 |

23911 7590 07/21/2009
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| EXAMINER |
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CHANG, RICK KILTAE

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| ART UNIT | PAPER NUMBER |
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3726

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| MAIL DATE | DELIVERY MODE |
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07/21/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/539,264 | Applicant(s) YASUMURA ET AL. | |
| | Examiner Rick K. Chang | Art Unit 3726 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-11,14 and 15 is/are pending in the application.
- 4a) Of the above claim(s) that are not listed in item 6 below is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6,8,10,11,14 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 6, 8, 10-11 and 14-15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The disclosure, as originally filed, failed to provide support for “applying a radially inward force over an entire periphery of the shaft portion of the workpiece” (claim 14, lines 10-11), “said predetermined . . . final product” (claim 14, lines 12-14), and “releasing the application of the radially inward force on the shaft portion of the workpiece” (claim 14, lines 18-19). Fig. 9 shows 22 is not mounted at the entire periphery of the shaft portion. The force induced by 22 is concentrated at the location, not applied over the entire periphery of the shaft portion. The releasing step is not performed after applying step, fitting step or finishing step.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 6, 8, 10-11 and 14-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For example, “the application of the radially inward force on the shaft portion of the workpiece” lacks positive antecedent basis.

Claims are ambiguous and competitors would be unable to discern the bounds of the invention.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 6 and 14-15, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Toda et al (US 6,672,769) in view of Kammeraad et al (US 5,249,555).

Re claims 14-15: Toda discloses roughly processing a female spline by broaching on a hole of a work for a hub which integrally comprises a flange for attaching a wheel and a shaft portion formed with said hole extended in the axial direction ; fitting and attaching a bearing on said shaft portion of the work for the hub and fitting and fixing the outer end of an inner race of said shaft at the other end portion of said shaft portion in the axial direction by plastically deforming by caulking (or clinching); and subsequently, finishing the female spline by semi-dry or dry broaching on said hole of said shaft portion on which the spline is roughly processed (col. 6, lines 64-67 and col. 7, lines 1-16; since there is no mention of lubricant, it must be semi-dry or dry broaching), except for forming a cylindrical hole through a shaft portion of a work piece for the hub by cutting; applying a radially inward force over an entire periphery of the shaft portion of the work piece to reduce a diameter of the hole by a predetermined amount, said

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predetermined amount being an estimated amount for cancelling deformation otherwise caused in forming the female spline of the hub unit as a final product; releasing the application of the radially inward force on the shaft portion of the work piece.

Kammeraad discloses applying a radially inward force (pressed-fit) over an entire periphery of the shaft portion of the work piece (32 is a ring) and releasing the application of the radially inward force on the shaft portion of the work piece (the final product is without 32).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Toda by applying a radially inward force over an entire periphery of the shaft portion of the work piece and releasing the application of the radially inward force on the shaft portion of the work piece, as taught by Kammeraad, for the purpose of providing a predetermined amount being an estimated amount for cancelling deformation otherwise caused in forming the female spline of the hub unit as a final product.

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to cut a cylindrical hole through a shaft portion of a work piece for the hub because Applicant has not disclosed that cutting a cylindrical hole through a shaft portion of a work piece for the hub provides an advantage, is used for a particular purpose, or solves a stated problem.

Therefore, it would have been an obvious matter of design choice to modify Toda to obtain the invention as specified in claim 14.

Re claim 6: Toda discloses a seal (between 15 and 16 and right side of 17, there lies a seal) so as to perform a semi-dry or dry broaching.

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7. Claim 8, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Toda et al (US 6,672,769)/Kammeraad et al (US 5,249,555) as applied to claim 14 above, and further in view of Brown (US 5,197,837).

Toda/Kammeraad teach the invention as described with respect to claims above.

Toda/Kammeraad fail to disclose removing chips attached to a tool in the course of the semi-dry or dry broaching via cleaner.

Brown discloses removing chips attached to a tool in the course of the semi-dry or dry broaching via cleaner (2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Toda/Kammeraad by removing chips attached to a tool in the course of the semi-dry or dry broaching via cleaner, as taught by Brown, for the purpose of removing metal chips.

8. Claim 10, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Toda et al (US 6,672,769)/Kammeraad et al (US 5,249,555) as applied to claim 14 above, and further in view of Cannelli, Jr. (US 6,155,760).

Toda/Kammeraad teach the invention as described with respect to claims above.

Toda/Kammeraad fail to disclose covering means which is opened only when the tool comes in or goes out is provided either one or both on a side upper than the upper end of said hub unit and on a side lower than a surface on which the hub unit is installed, and semi-dry or dry broaching work is performed by intercepting chips falling on the hub unit by means of this covering means.

Cannelli discloses opening a cover (30) only when t-he a tool comes in or goes out (Fig. 1), the cover being on at least one of a side above an upper end of the hub unit and on a side

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below a surface on which the hub unit is installed; and performing the semi-dry or dry broaching by intercepting chips via the cover falling toward the hub unit (col. 1, lines 65-66).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Toda/Kammeraad by covering means which is opened only when the tool comes in or goes out is provided either one or both on a side upper than the upper end of said hub unit and on a side lower than a surface on which the hub unit is installed, and semi-dry or dry broaching work is performed by intercepting chips falling on the hub unit by means of this covering means, as taught by Cannelli, for the purpose of minimizing cleaning after broaching.

9. Claim 11, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Toda et al (US 6,672,769)/Kammeraad et al (US 5,249,555) as applied to claim 14 above, and further in view of Scott et al (US 5,489,169).

Toda/Kammeraad teach the invention as described with respect to claims above.

Toda/Kammeraad fail to disclose a direction of the broaching for roughly processing the female spline is the reverse of a direction of the subsequent finishing of the female spline.

Scott discloses a direction of the broaching for roughly processing the female spline is the reverse of a direction of the subsequent finishing of the female spline (Fig. 3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Toda/Kammeraad by a direction of the broaching for roughly processing the female spline is the reverse of a direction of the subsequent finishing of the female spline, as taught by Scott, for the purpose of providing a smooth surface.

Response to Arguments

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10. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Interviews After Final

11. Applicant note that an interview after a final rejection must be submitted briefly in writing the intended purpose and content of the interview (the agenda of the interview must be in writing). Upon review of the agenda, the Examiner may grant the interview if the examiner is convinced that disposal or clarification for appeal may be accomplished with only nominal further consideration. Interviews merely to restate arguments of record or to discuss new limitations will be denied. See MPEP 714.13 and 713.09.

Conclusion

12. Please provide reference numerals (either in parentheses next to the claimed limitation or in a table format with one column listing the claimed limitation and another column listing corresponding reference numerals in the remark section of the response to the Office Action) to all the claimed limitations as well as support in the disclosure for better clarity (optional). Applicants are duly reminded that a full and proper response to this Office Action that includes any amendment to the claims and specification of the application as originally filed requires that the applicant point out the support for any amendment made to the disclosure, including the claims. See 37 CFR 1.111 and MPEP 2163.06.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick K. Chang whose telephone number is (571) 272-4564. The examiner can normally be reached on 5:30 AM to 1:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Bryant can be reached on (571) 272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Rick K. Chang/
Primary Examiner, A.U. 3726

RC
July 21, 2009